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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/563,168

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Yasuyuki Goto

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EXAMINER

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/563,168	<b>Applicant(s)</b> GOTO ET AL.	
	<b>Examiner</b> FATIMA N. FAROKHROOZ	<b>Art Unit</b> 2889	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 8-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>06/03/08</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendments***

The amendments filed on 10/20/08 is acknowledged.

Claims 8-27 are pending in the instant application.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al (US 5543237) further in view of Lee et al (US 20040180234)

Regarding claim 8, Watanabe teaches a charge injection type electroluminescence device (see at least Fig.1 and Abstract) for undergoing luminescence by recombination of a hole to be injected from an anode and an electron to be injected from a cathode (see electrodes 2 and 5), comprising: a luminescent layer 4 formed only of an inorganic compound (See Abstract).

Watanabe does not teach that the luminescent layer is provided between a hole transport layer and an electron transport layer, each formed of an organic compound.

In the same field of endeavor of electroluminescence devices, Lee teaches a light emitting device (see at least Fig.1), wherein an electron and hole transport layer (6, 4) are formed of an organic material ([0053]-[0085]) on either side of the luminescent

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layer 5 in order to efficiently transfer holes from the anode and electrons to the cathode; to the emitting layer between the electrodes to which an electric field is applied ([0053] that also applies to electron transport layer)

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify the electron and hole transport layers, as disclosed by Lee, in the electroluminescence device of Watanabe in order to efficiently transfer holes from the anode and electrons from the cathode to the emitting layer between the electrodes to which an electric field is applied.

Regarding claim 9, Watanabe teaches an electroluminescence device (Fig.1), wherein the inorganic compound is provided with a metal compound (see Abstract) which undergoes luminescence by luminescent transition by spin tolerance transition or spin inhibition transition, or undergoes luminescence by luminescent transition by inner-shell transition of a metal ion.

Initially, and with respect to the phrase “which undergoes luminescence by luminescent transition by spin tolerance transition or spin inhibition transition, or undergoes luminescence by luminescent transition by inner-shell transition of a metal ion” in claim 9, it is respectfully noted that intended use and/or other types of functional language must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, which in the above claim

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is **“the inorganic compound is provided with a metal compound which undergoes luminescence** “that is disclosed by the prior art then it meets the claim.

Claims 10-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al (US 5543237) and Lee et al (US 20040180234) as applied to claims 8 and 9;further in view of Leblans (US 5632930).

Regarding Claims 10 and 11, Watanabe and Lee teaches the invention set forth above (see rejection in Claims 8 and 9 above).

The previous combination is silent regarding an electroluminescence device, wherein the inorganic compound is a combination of a luminescent metal compound with an inorganic compound capable of dissolving the metal compound therein as a solid solution.

**In the same field of endeavor of phosphors**, Leblans teaches an inorganic phosphor for X-ray intensifying screens having composition that comprises combination of europium (II) bromide (**inorganic compound**) with cesium iodide (**Cesium Iodide is the luminescent metal compound** ; see lines 37-46 of col.6, lines 16-20 of col.5 and claim 7 of Leblans) in order to stabilize the device in which the phosphor is employed against humidity (see lines 1-5 of col.3).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify the inorganic luminescent layer, as disclosed by Leblans, in the electroluminescence device of Kido in order to stabilize the device in which the phosphor is employed against humidity.

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Further, Leblan implicitly teaches that the inorganic compound is a combination of a luminescent metal compound with an inorganic compound capable **of dissolving the metal compound therein as a solid solution**. (Lines 35-52 of col.6 of Leblan; wherein the mixture is a powder).

Note: Regarding the Leblans reference that teaches **the same phosphor** for X-ray intensifying screens but does not disclose that the phosphor composition is used for hole and an electron recombination; a composition that has already been disclosed by Leblans as a **phosphor** does not become patentable upon the discovery of a new property of the phosphor that undergoes a hole and electron recombination.

See section I of 2112 [R-3] in the MPEP that states: wherein I. **SOMETHING WHICH IS OLD DOES NOT BECOME PATENTABLE UPON THE DIS-COVERY OF A NEW PROPERTY** “[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art’s functioning, does not render the old composition patentably new to the discoverer.”

Regarding Claims 12-27, Kido teaches the invention set forth above (see rejection in Claims 8-11 above).

Kido is silent regarding an electroluminescence device,

- 1) wherein the inorganic compound is a metal halide (claims 12-13)
- 2) wherein the luminescent metal compound and the inorganic compound capable of dissolving the metal compound therein as a solid solution are both metal halides (claims 14-15).

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3) wherein the inorganic compound is a combination of a halide of a rare earth element with a halide of an alkali metal or an alkaline earth metal (claims 16 - 17).

4) wherein the combination of a luminescent metal compound with an inorganic compound capable of dissolving the metal compound therein as a solid solution is a combination of a halide of a rare earth element with a halide of an alkali metal or an alkaline earth metal (claims 18 and 19).

5) wherein the inorganic compound is a combination of a halide of divalent europium with a halide of an alkali metal or an alkaline earth metal (claims 20-21).

6) wherein the combination of a luminescent metal compound with an inorganic compound capable of dissolving the metal compound therein as a solid solution is a combination of a halide of a rare earth element with a halide of an alkali metal or an alkaline earth metal (claims 22 and 23).

6) wherein the inorganic compound is a combination of europium (II) bromide with cesium iodide (CsI) (claims 24-25).

7) wherein the combination of a luminescent metal compound with an inorganic compound capable of dissolving the metal compound therein as a solid solution is a combination of europium (II) bromide with cesium iodide (claims 26 and 27).

In the same field of endeavor, Leblans teaches a phosphor composition that comprises combination of europium(II) bromide (for claims 24-27; a halide of divalent europium (rare earth element) for claims 12-23) with cesium iodide (for claims 24 -27;

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halide of an alkali metal for claims 12-23; see lines 37-46 of col.6, lines 16-20 of col.5 and claim 7 of Leblans) in order to stabilize the device in which the phosphor is employed against humidity (see lines 1-5 of col.3).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify the luminescent layer, as disclosed by Leblans, in the electroluminescence device of Kido in order to stabilize the device in which the phosphor is employed against humidity.

Further regarding claims 12-13, wherein the inorganic compound is a metal halide, Leblan teaches that the inorganic compound for the luminescent material can be a metal halide comprising of a halide of a rare earth element with a halide of an alkali metal (see lines 37-46 of col.6, lines 16-20 of col.5 and claim 7 of Leblans which discloses combination of Europium II bromide and Cesium Iodide).

Note: Applicant's specification discloses that "More specifically, examples of the **"metal halide"** include **"combinations of a halide of a rare earth element with a halide of an alkali metal or alkaline earth metal"**". (For example, Applicant's spec. paragraph [0075]). Therefore, claims 12-15 are disclosed by Leblins that teaches that the inorganic compound is Europium II bromide and Cesium Iodide; which have in turn been defined as metal halides in the Applicant's disclosure.

***Other Prior Art Cited***



The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

**DE010242006** is in the patent family of 7038221 teaches that a luminophore plate comprises of CSI and Europium Bromide.

US 5540859 teaches an electroluminescent material comprising of CSI and Europium Bromide.

US 4023039 teaches that the luminescent metal compound is Cesium Iodide.

### ***Response to Arguments***

The arguments filed on 10/20/08 have been considered.

The Applicant has made the following arguments:

1. The amended portion of the claim 1 recites the limitation of a "luminescent layer formed only of an inorganic compound" (see page 7 and pages 10-11 of the Remarks).
2. Receipt of Foreign priority documents by the Office (see page 9 of the Remarks).
3. Leblans is directed to "X-ray intensifying screens", in which phosphor particles absorb X-rays and convert them into visible light or ultraviolet radiation and therefore **Leblans does not disclose a screen or a layer that undergoes luminescence by recombination of a hole and an electron, namely electroluminescence** (see pages 11 and 12 of the Remarks)

The following are the response to the Arguments:

1. The arguments are moot in view of new grounds of rejection using the new prior art of Watanabe and Lee.

2. The argument is considered and it is hereby confirmed that the foreign priority papers have been all received.

3. The arguments are not persuasive since the Applicant is directed to section 2112 [R-3] I of MPEP, wherein it is stated that I. **SOMETHING WHICH IS OLD DOES NOT BECOME PATENTABLE UPON THE DIS-COVERY OF A NEW PROPERTY** “[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art’s functioning, does not render the old composition patentably new to the discoverer.” Therefore a composition that has already been disclosed by Leblans as a **phosphor** does not become patentable upon the discovery of a new property of the same phosphor that undergoes a hole and electron recombination.

Therefore the claims are not in condition for allowance.

### ***Conclusion***

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

#### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fatima Farokhrooz whose telephone number is (571)-272-6043. The examiner can normally be reached on Monday- Friday, 9 am - 5 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minh-Toan Ton can be reached on (571) 272-2303. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you

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have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Fatima N Farokhrooz/  
Examiner, Art Unit 2889

/Toan Ton/  
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